

REMARKS

Applicants gratefully acknowledge the May 31, 2005 allowance of the present application. Subsequent to that allowance, Applicants filed a Request for Continued Examination in order to have the Examiner consider an Information Disclosure Statement that cited US 6,143,102 (Mendenhall '102). Applicants consider that the relevant disclosure of Mendenhall '102 is similar to disclosure of US 6,077,372 (Mendenhall '372), which had already been considered by the Examiner. Particular attention is directed to Table 1, Example 3, of Mendenhall '372. No amendment is needed to differentiate the presently claimed invention over Mendenhall '102.

Applicants add herewith new claim 75. New claim 75 is based upon claim 23 as allowed, but omits recitation of component percentages therefrom. This is in accordance with the original disclosure in the present application, as reflected e.g. in original claim 23. The Examiner will recall that the particle size recitation was added to claim 23 based upon such disclosure as that in the paragraph bridging pages 6-7 of the specification. See also page 13 ("it is preferable that at least requirement (a) is met. requirement (a): a particle diameter being 0.5 to 40 μm ").

Claims 23 and 75 – among others – are drawn to a compositional invention embodiment that is characterized by the presence of basic metal nitrate having a particle diameter in the range of 0.5 to 40 μm (the BASIC METAL NITRATE PARTICLE DIAMETER INVENTION). The recited basic metal nitrate particle diameter feature of this embodiment of the present invention provides the claimed compositions with unexpected improvement with respect to rapidity of ignition. As demonstrated in the present specification, these compositions have excellent thermal stability. For instance, even after standing in a high temperature atmosphere for 10 or more years, they do not decompose. Specification, page 12, first full paragraph.

Claim 23 had been rejected under 35 U.S.C. §103(a) as being unpatentable over US 5,608,183 (Barnes) in view of US 5,500,059 (Lund). Claim 23 was also rejected under 35 U.S.C. §103(a) as being unpatentable over US 5,841,065 (Mendenhall) in view of Lund. None

of Barnes, Mendenhall, and Lund show optimization of the particle diameter of the basic metal nitrate. None of these references suggests that optimization of the particle diameter of the basic metal nitrate can improve heat resistance. As Applicants argued in the Amendment that was filed on December 8, 2004:

Claim 23 herein requires, among other things, that the claimed compositions include a basic metal nitrate “having a particle diameter of 0.5 to 40 μm ”.

Barnes neither teaches nor suggests compositions that include a basic metal nitrate having a particle diameter of 0.5 to 40 μm . The Barnes patent (which is only 3 pages long, including its bibliographic page and its claims) provides no teachings at all concerning the form in which the basic metal nitrate should be used. Barnes is completely silent about improvement of heat resistance.

Likewise, Mendenhall fails to teach or suggest a composition which includes a basic metal nitrate having a particle diameter of 0.5 to 40 μm . Mendenhall teaches adding zeolite to adsorb ammonia generated by decomposition of a gas generating agent, so that the ammonia is prevented from causing further decomposition of the gas generating agent. Mendenhall fails to suggest that optimization of any property of the gas generating agent (such as particle size) could improve the stability of the gas generating agent. In Mendenhall, the gas generating agent is allowed to decompose and the generated ammonia is merely removed to prevent further decomposition. The Mendenhall patent (which is even shorter than the Barnes patent) provides no teachings at all concerning the form in which the basic metal nitrate should be used.

Recognizing the deficiencies of the Barnes and Mendenhall references, the Examiner has now cited the Lund reference, stating that “Lund et al teaches the use of an oxidizer of 8.7 micron particle size (see example 12)”. Lund merely relates copper oxide diameter to combustion velocity. “It has been found that gas generant compositions prepared from pyrometallurgical grade cupric oxide produce faster burn rates compared to hydrometallurgical grade cupric oxide.” Column 5, lines 19-26. Lund does refer to stability in lines 62-65 of column 6: “One of the important advantages of the anhydrous 5-AT gas generating compositions of the present invention, is that they are stable and combust to produce sufficient volumes of substantially nontoxic gas products”. That disclosure of “stability” however does not indicate what kind of stability nor what is stabilized. Lund fails to indicate whether or not the stability is caused by an oxidizer having a specified particle range. The Examiner has not explained how the Lund disclosure motivates those of ordinary skill in the art to produce the Barnes or Mendenhall basic metal nitrates in a particle size of 8.7 microns. The fact that a person of ordinary skill in the art *could* change the disclosure of a primary reference in a particular way does not mean that he or she is *motivated* to make that change. Applicants believe that particle size considerations and their relationship to combustion velocity differ when considering copper oxide on the one hand and basic copper nitrate on the other.

Thus, claim 23 distinguished over the applied prior art based upon particle size, and not based upon relative amounts of components in the composition. Accordingly, new claim 75, which is fully in accordance with the original disclosure, is likewise patentable over the art that was formerly applied against claim 23.

Should there be any outstanding issues to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned by telephone at the number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: September 26, 2005

Respectfully submitted,

By 
Raymond O. Stewart

Registration No.: 21,066

BIRCH, STEWART, KOLASCH & BIRCH, LLP

8110 Gatehouse Rd

Suite 100 East

P.O. Box 747

Falls Church, Virginia 22040-0747

(703) 205-8000

Attorney for Applicant